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In cooperation with State, Federal and Other Agencies

COTTON INSECT CONDITIONS FOR WEEK ENDING JULY 7, 1950
(Sixth Cotton Insect Survey Report for 1950)

The boll weevil situation has improved somewhat during July especially in the southern half of the "Boll Weevil Belt." Insecticides have been and are being used by more farmers and in larger quantities than ever before for boll weevil control. Hot, dry weather has helped to check the weevils in many localities. Predacious and parasitic insects and other natural enemies of the boll weevil are helping to reduce their numbers in every cotton field where they occur.

Late July and August is the most important period for boll weevil control. No matter how abundant the weevils may be they can be checked by the proper use of insecticides.

The second most important cotton pest thus far this season, but ranking far below the boll weevil, is the tobacco budworm, Heliothis virescens (Fabr.).

The cotton leafworm is at this time more widely distributed than in any previous year of authentic record. It has now been reported from 29 counties in Texas including El Paso County. It has been reported from ten widely distributed counties in Oklahoma; from two parishes in northern Louisiana, and in Jackson County in northeastern Arkansas.

Although many reports have been received concerning insecticide shortages we have not heard of a cotton grower who has been unable to obtain the insecticides needed with the exception of TEPP for thrips control in the Lower Rio Grande Valley of Texas. This year there are only 19,032,000 acres of cotton to be protected from insects as compared with 27,719,000 last year. Insecticides have been manufactured, and distributed in the cotton growing States in larger quantities than ever before. With only two-thirds as many acres of cotton to protect and much larger quantities of insecticides available this year, it would seem that the insecticide situation should not be too serious.

INSECTICIDES AND EQUIPMENT FOR APPLYING THEM

South Carolina: The summary statement that accompanied the Cotton Letter issued by the Extension Service, Clemson College, on July 3 indicates that in certain counties shortages of insecticides and equipment for applying them have been reported by the County Agents. Shortages of benzene hexachloride were reported in Dillon, Edgefield, and Lee Counties; toxaphene in Dillon, Greenville, Marlboro, and Spartanburg Counties; DDT in Lee and Spartanburg Counties; and calcium arsenate in Marion and Spartanburg Counties. Shortages of hand dusters were reported in Fairfield, Marion, and Oconee Counties; mule dusters in Laurens, Marion, McCormick, and Oconee Counties; traction dusters in Darlington and Marion Counties; and spray machines in Darlington, Greenville, Marion, and York Counties.

Alabama: Glynn B. Wood and Clifford D. Porterfield reported on July 8: "The cotton insecticide situation in Alabama is becoming rapidly critical. Reports of insecticide dealers reveal that toxaphene is hard to secure, and the supply of BHC-DDT

is short. The County Agent of Cullman County states that there is no insecticide available and the need is urgent."

Mississippi: E. W. Dunnam reported on July 7: "DDT in liquid form is getting tight and there is talk about formulations containing DDT getting scarce. Apparently other insecticides are fairly plentiful."

Texas: A. N. White, Associate County Agent - Entomology, Lower Rio Grande Valley, reported July 6: "Insecticide stocks are low and the nearness to the end of the cotton insect season makes dealers reluctant to order heavily; farmers intending to continue dusting are urged to place their orders a few days in advance of application time."

Excerpts from Weekly Cotton Weather Bulletin issued by the Weather Bureau, U. S. Department of Commerce, New Orleans, Louisiana, July 4:

Weather and Cotton over the Belt: Rain fall most areas consisted of scattered summer thundershowers and the hot dry weather has resulted in rapid growth of cotton and made dusting and poisoning for weevils very effective.

Texas: Weather favored growth, cultivation and insect control measures.

Oklahoma: Much boll weevil damage.

Arkansas: Weather favorable for checking weevils.

Louisiana: Weevils very active.

Mississippi: Dusting cotton very active; cotton squaring, blooming, fruiting all sections, except Tennessee Valley; condition cotton excellent in Delta ranging to fair in east; weevils very active, damage heavy except in Delta where poisoning keeping under control.

Alabama: Weather favorable for checking weevils.

Georgia: Weather favorable for weevil control.

North Carolina: Cotton benefitted by hot weather beginning of week; weevil infestation still serious.

Arizona: Cotton fruiting many early-planted fields; some dusting underway for lygus and fleahoppers.

BOLL WEEVIL

North Carolina: During the week ending June 30, 207 fields were examined in 23 counties. In 104 fields where insecticides had not been used for boll weevil control an average of 52% of the squares were infested; while among the 103 fields that had been treated with insecticides for weevil control there were 3 fields in which no boll weevils could be found and the average infestation in the 103 fields was only 14% punctured squares.

During the week ending July 7, 202 fields were examined in 22 counties. In the 114 fields that had not been treated with insecticides for boll weevil control there was an average of 51% punctured squares, while in the 88 fields that had been treated with insecticides there was an average of only 8% punctured squares.

In 63 of the 58 fields that had received insecticide applications the infestations did not exceed 10% punctured squares; in 24 fields the infestations ranged between 10 and 25% punctured squares, and in only one field did the infestation exceed 25%. In 57 of the 114 fields where insecticides had not been used the infestations were over 50% punctured squares. In the other 57 fields the infestations ranged from 10 to 50% punctured squares. Not one of the 114 unpoisoned fields had infestations of less than 10% punctured squares.

The boll weevil situation in North Carolina is extremely critical but the records indicate that the cotton growers who are applying insecticides properly are holding the weevils in check. The fight should be continued in each field until a full crop of cotton is produced.

South Carolina: The Cotton Letter issued by the Extension Service, Clemson College, on July 3, states that the average infestation in the poisoned fields in 39 counties was 13% punctured squares as compared with an average of 56% punctured squares in the unpoisoned fields. Boll weevil infestations throughout the State are high where insecticides are not being used. The Cotton Letter indicates that 668,400 acres of cotton in South Carolina have been poisoned for boll weevil control through July 1. When the Letter was issued there were 211,500 acres of cotton that had thus far not been poisoned. This report is very interesting when compared with the report of the previous week. It should be noted that the average infestations in the fields that received insecticides for boll weevil control were reduced during the week from 15 to 13% punctured squares while the average infestation in the fields that had not received insecticide applications increased from 54 to 56% punctured squares. There are now on the average four times as many weevils in the unpoisoned fields as in the poisoned fields. In other words there are fewer weevils in the 668,400 acres of poisoned cotton than in the 211,500 acres of unpoisoned cotton.

The Clemson Cotton Letter for July 3 states: "Over eleven times as many weevils collected from trap plot at Pee Dee Experiment Station during week of June 24-July 1st as were collected during the same period in 1949. Thorough coverage of all plants is essential for good cotton insect control. Those fields reporting high infestations in the Piedmont area show that cotton is just now squaring freely and the weevils are abundant enough to puncture and eliminate half of the early crop of squares."

"Acute cotton poison shortage expected in South Carolina. Buy enough poison now to last the entire season! Indications are that cotton insecticides now in storage in our warehouses may be shipped to other States if not bought by our farmers. These poisons are in great demand in other cotton States and will be sent there if not sold locally. If you buy more than you can use, store it in a dark dry place. It will keep."

In the examination of 90 unpoisoned fields in 18 counties during the week ending July 8 the average infestation was 65% punctured squares. In 8 fields the infestation ranged from 26 to 50% and in 82 fields more than 50% of the squares were punctured. In 51 poisoned fields in 17 counties the average infestation was 12% punctured squares. In 17 fields the infestation ranged from 1 to 10% and in 34 fields from 11 to 25% of the squares were punctured.

Georgia: Boll weevil infestations throughout the State are averaging somewhat lower now than a year ago at this time. During the week ending July 8, examinations were made in 228 cotton fields in 72 counties. Only 3 of the fields, in Bulloch, Colquitt, and Worth Counties, were apparently free of weevils. In 99 of the infested

fields the infestations did not exceed 10% punctured squares; in 66 fields the infestations ranged from 11 to 25%; in 44 fields the range was between 26 and 50%; and in only 16 fields were more than 50% of the squares punctured. Fields that had 50% or more of the squares punctured were reported in Baker, Calhoun, Turner, and Wilcox Counties in the southwestern section of the State; in Effingham, Emanuel, and Washington Counties in the southeastern section of the State; in Barrow, Franklin, Gwinnett, Jackson, Lincoln, Madison, Morgan, Walton, and Wilkes in the northeastern part of the State; and in Fayette and Lamar Counties in the northwestern part of the State.

Alabama: Boll weevils were found in 53 of the 57 fields examined in 10 counties in the northwestern part of the State at the average rate of 34% punctured squares. This is at the same rate as during the previous week. In 8 fields less than 10% of the squares were punctured, in 14 fields the infestations ranged from 11 to 25% punctured squares, in 19 fields the range was between 26 and 50% punctured squares, and in 12 fields more than 50% of the squares were punctured. The heaviest infestations reported were in Tuscaloosa, Marion, Morgan, Cullman, and Walker Counties.

Tennessee: Boll weevils were found in all of the 21 fields examined in Fayette, Hardeman, McNairy, and Shelby Counties at an average rate of 38% punctured squares as compared with 44% the previous week. In 3 fields less than 11% of the squares were punctured, in 5 fields from 11 to 25%, in 6 fields 26 to 50%, and in 7 fields more than 50% of the squares were punctured.

Mississippi: Clay Lyle on July 10 issued a warning against wasting poison in fields that have few or no weevils when he reported that weevils were found in only 570 of the 664 cotton fields examined in 45 counties. The average infestation in the 570 fields was 18% punctured squares, as compared with 20% the previous week and 27% a year ago. "Except for some Delta fields, weevil infestation is generally high in the older unpoisoned cotton. Poisoning has given excellent results wherever it was done properly. In Newton County, a poisoned field had 5% infestation, and unpoisoned 79%; in Chickasaw, a poisoned field had 6%, 3 unpoisoned 74, 80 and 96%; in Tate a field with 40% had only 2% after poisoning 4 times." Dr. Lyle advised that "Farmers who have reduced their infestation below 10%, or from other causes have few or no weevils, should stop poisoning now, but continue careful examination of their fields at about 5-day intervals." He stated "that weevils are not likely to increase much in such fields until migration begins about the first of August, and that poisoning them before that time will probably be a waste of money. Fields with infestations above 20 to 25% should be poisoned at once giving at least 3 applications 4 to 5 days apart, as it will soon be too late to set a crop."

Fields with more than 50% punctured squares were reported in Attala, Bolivar, Chickasaw, Choctaw, Clay, De Soto, George, Hinds, Humphreys, Lowndes, Monroe, Newton, Pike, Prentiss, Tate, Tishomingo, Walthall, Washington, Winston, and Yazoo Counties.

In the Delta Counties the boll weevil situation remains about the same as last week. Weevils were found in 442 of the 527 fields examined in 16 counties at an average rate of 13% punctured squares which is the same rate as during the previous week and compares with 16% a year ago. No punctured squares were found in 85 of the fields examined, in 277 fields less than 11% of the squares were punctured, in 95 fields the infestations ranged from 11 to 25% punctured squares, in 48 fields from 26 to 50%, and in 22 fields more than 50% were punctured.

Louisiana: Boll weevils continue to emerge from hibernation cages at Tallulah. In only four recent years, 1945, 1941, 1937 and 1932 was the survival of weevils as high as this year. The emergence from May 1 to July 6 as compared with the past 19 years is as follows:

Year	Boll Weevil Survival in Hibernation Cages from May 1 to July 6	Year	Boll Weevil Survival in Hibernation Cages from May 1 to July 6
	Percent		Percent
1950	16.34	1940	.02*
1949	4.04*	1939	1.94*
1948	.38*	1938	.76*
1947	1.84*	1937	18.36
1946	9.24	1936	.12*
1945	15.20	1935	.48*
1944	2.36	1934	4.24*
1943	.98	1933	.44*
1942	.08*	1932	16.02
1941	17.16		

* Emergence completed

Plant examinations made in 21 fields in De Soto, Caddo, Red River, Natchitoches, and Bossier Parishes showed 15 fields infested and 6 uninfested. An average of 261 weevils per acre was found. Square counts were made in 183 fields in 16 parishes. The average infestation was 18% punctured squares as compared with 26% the previous week. No punctured squares were found in 3 of the fields examined; the infestation ranged from 1 to 10% in 73 fields; from 11 to 25% in 68 fields; from 26 to 50% in 30 fields; and more than 50% of the squares were punctured in 9 fields in Bossier, Caddo, Franklin, and Richland Parishes.

In fields of oldest cotton both overwintered and first-generation weevils are now present.

Arkansas: Charles Lincoln, Extension Entomologist, reported on July 10: "Last year first brood emergence came with a rush. This year it is strung out with great variation from region to region and field to field. Infestations are spotted in the northern 2/3 of the Delta. In southern Delta and in hill sections infestations are more general but there is great variation from field to field, age of cotton being an important factor."

Boll weevils were found in 87 of the 290 fields of young cotton examined in 10 counties at an average rate of 149 weevils per acre. Square counts were made in 212 fields in 10 counties averaging 12% punctured squares. No punctured squares were found in 73 of the fields examined. In 64 fields less than 11% of the squares were punctured; in 41 fields from 11 to 25%; in 25 fields from 26 to 50%, and in 9 fields in Desha, Jackson, Lincoln and Pulaski Counties more than 50% of the squares were punctured.

Texas: Only one weevil emerged from the hibernation cages at Waco during the week ending July 7. The emergence at this time as compared with the previous year and the total seasonal survival are shown in the following table:

Year	Seasonal Survival as of July 7	Total Seasonal Survival, percent
1940	0.20	0.20
1941	21.32	21.32
1942	0.715	0.715
1943	0.225	0.225
1944	2.78	2.78
1945	3.42	3.42
1946	1.32	1.32
1947	0.18	0.18
1948	0.22	0.22
1949	0.06	0.06
1950	4.3	

Boll weevils have increased in many fields and localities over the State, especially in unpoisoned fields, but in most sections where insecticides have been applied properly weevils are either under control or being supressed satisfactorily. The average infestation in 45 poisoned fields in McLennan and Falls Counties was 4% punctured squares as compared with 17% in 33 unpoisoned fields. In the examination of 663 fields in 72 counties the average infestation was 20% punctured squares. No infestation was found in 92 fields examined; in 253 fields less than 11% of the squares were punctured; in 133 fields from 11 to 25%; in 101 fields from 26 to 50%, and in 48 fields more than 50% of the squares were punctured.

A. J. Chapman, Brownsville, wrote on July 1: "While boll weevils are expected to take a comparatively heavy toll of the cotton crop in the Valley before the season ends, they are still being successfully controlled where insecticides are used as recommended. Weevils are migrating at the present time and a rigid schedule of poisoning must be followed to prevent further damage."

Oklahoma: Due to the size of the cotton plants in many fields some adult weevils are being overlooked and infestation, no doubt, is higher than the records indicate. In 37 fields examined in 7 counties, 21 were found to be infested at an average rate of 607 weevils per acre. Square infestation in 7 fields in 5 southeastern counties averaged 31% punctured squares. In 6 fields less than 11% of the squares were punctured; in 4 fields from 11 to 25%; in 5 fields from 26 to 50%, and in 3 fields in Okfuskee and Payne Counties more than 50% of the squares were punctured.

COTTON LEAFWORM

Texas: Cotton leafworms were found to be widely scattered and fairly common in many fields in McLennan and Falls Counties and specimens were also found in Coryell, Lee, Bell, Kauffman, Glasscock, Midland, and El Paso Counties. These 9 counties and the 20 counties reported in previous reports make a total of 29 counties in Texas known to be infested with cotton leafworms. Indications are that a general infestation of leafworms exists throughout central Texas and if showery weather continues, it is likely that poisoning will be necessary to keep this insect from defoliating the cotton before it matures.

A. J. Chapman, Brownsville, wrote on July 1: "The cotton leafworm has stripped all cotton in the adjacent Mexican area where insecticides have not been used but this insect has not become as serious on the American side as had been expected. However, there is a heavy crop of adult moths at the present time and a new crop of leafworms may be expected in the next few days."

Oklahoma: The cotton leafworm has been reported from Okfuskee, Payne, Coal, McCurtain, Grady, Love, Jefferson, Cotton, Stephens, and Comanche Counties. This indicates that leafworms are now present in small numbers over much of the State.

Arkansas: Charles Lincoln, Extension Entomologist, wired July 12: "Cotton leafworm found Jackson County in small numbers."

Louisiana: Rudolph G. Strong, Extension Entomologist, submitted a specimen of the cotton leafworm, Alabama argillacea (Hbn.) collected in Morehouse Parish on July 6. The determination was verified by J. G. Franclemont. This makes two parishes that are now known to be infested with the cotton leafworm as it was reported in Madison Parish last week.

MISCELLANEOUS INSECTS

South Carolina: F. F. Bondy reported on July 8: "Some lepidopterous larvae have been found in most of the fields examined and some growers are becoming alarmed. However, in the fields checked they had not caused any appreciable damage."

Georgia: Loy W. Morgan, Coastal Plain Experiment Station, Tifton, investigated a serious outbreak of lepidopterous larvae on cotton in Terrell County on June 19. He reported at least 95% of the terminals had been damaged by young larvae feeding shortly after hatching. Mr. Morgan submitted about 50 specimens of the larvae collected from cotton. Dr. J. G. Franclemont found that all of the specimens submitted represented one species, the tobacco budworm, Heliothis virescens (Fabr.).

Alabama: Glynn B. Wood and Clifford D. Porterfield found lepidopterous larvae that have not yet been identified in 21 of the 57 cotton fields examined in 10 counties in the northwestern part of the State. Fields in which more than 5% of the squares had been ruined by "bollworms" were noted in Bibb, Tuscaloosa, and Marion Counties. The average infestation in the 21 infested fields was 4% ruined squares. Aphids were noted in only 7 of the 57 cotton fields examined in 10 counties. In only one field were the aphids reported as abundant.

Tennessee: In the examination of 21 fields in 4 southwestern counties lepidopterous larvae were reported in 7 fields, rapid plant bugs in 6 fields, tarnished plant bugs in 5 fields, and Neurocolpus nubilus in one field.

Mississippi: Injury to squares by lepidopterous larvae was reported in 118 of the 527 fields examined in 16 Delta Counties during the week ending July 7.

J. M. Langston, State College, examined 25 lepidopterous larvae collected on cotton at Yazoo City (June 15), Anguilla (June 19), Sidon (June 19), and Shuqualak (June 20), and identified 13 as the bollworm, Heliothis armigera (Hbn.); 11 as the tobacco budworm, Heliothis virescens (F.), and one as the yellow-striped armyworm, Prodenia ornithogalli Guen.

On June 27 E. W. Dunnam submitted for determination 22 lots of lepidopterous larvae or "worms" found injuring cotton in the Delta Counties of Mississippi. These insects were determined by H. W. Capps and J. G. Franclemont. Some vials contained several species. The bollworm, Heliothis armigera (Hbn.) was in 16 collections, the tobacco budworm, Heliothis virescens (F.) was in 6 of the collections, Platynota rostrana (Wlk.) was in 3 of the collections, and there were 4 other species that were collected at only one locality. The garden webworm, Loxostege similalis (Guen.) was taken at Rolling Fork, Sharkey County, and three other species, Acontia sp., Prodenia sp., and a looper, Autographa sp., were injuring cotton at other points in the Delta.

Louisiana: In Madison Parish records were made of squares injured by lepidopterous larvae while examining 14,400 squares in 37 fields for boll weevil punctures. Injured squares were found in 33 of the fields at an average rate of 3.4%. Infestations of lepidopterous larvae appear to be general throughout the State in both poisoned and unpoisoned cotton. Heavy aphid infestations have been reported in some fields in Natchitoches Parish.

Arkansas: Charles Lincoln, Extension Entomologist, reported July 10: "Reports of bollworm continue but appear to be fading rapidly. Cotton square borers are generally present in small numbers and as usual are being confused for bollworm."

Texas: Scattering infestations of bollworms are being found in many sections of the State, with a few fields showing high infestations and needing control.

INSECTS ON IRRIGATED COTTON OF THE SOUTHWEST

Arizona: As a whole the injurious hempiterous insect populations are lower than at this time a year ago. At this time last year stink bugs were quite numerous in many cotton fields, whereas this year few stink bugs have been observed on cotton. Lygus bugs predominate in most fields. Some dusting on a small scale has been done in the Salt River and Safford Valleys and in the Stanfield area in Pinal County.

California: Reports have been received of considerable dusting with insecticides for mite control on cotton in the San Joaquin Valley.

New Mexico: The injurious cotton insect populations are still low in the Pecos Valley with the exception of a few fields that show rather heavy bollworm infestations.

Texas: The Lygus bugs and other sucking insects on cotton are increasing in numbers in the El Paso Valley but are not as abundant as they were at this time in 1949. On June 30 L. W. Noble, Ysleta, wrote: "No poison is being applied on cotton at present. Some poison had been applied at this time last year for the control of hemipterous insects."

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